

CLAIMS

1. A method for surface marking a solid substrate (1), according to which, during an exposure sequence, said substrate is exposed to coherent monochromatic light (2)
5 in order to strip said substrate over an indented surface (3), wherein the exposure conditions, including duration, are set in order to restrict said indented surface to simple abrasion designed for the bonding of a printing medium, and the exposure sequence is followed by a sequence of projecting in discrete form, during which particles (6) of said printing medium, the deposition of which subsequently defines a
10 printed element (4), are projected in targeted fashion into the indented surface (3, 31).
2. The method as claimed in claim 1, wherein the projecting sequence is carried out in liquid form, by virtue of which the particles (6) are droplets in liquid form, the deposition of which defines a printed element (4), after drying.
3. The method as claimed in claim 1, wherein the projecting sequence is carried
15 out in solid form, by virtue of which the particles (6) are grains in solid form, the deposition of which defines a printed element (4), after adhesion to the substrate (1).
4. The method as claimed in claim 1, according to which said symbol is defined by the juxtaposition of printed points (7), having respectively identical or different elementary areas, in a predetermined pattern, wherein a printed element having
20 substantially the same elementary area corresponds to each point (7).
5. The method as claimed in claim 4, wherein, during the exposure sequence, the substrate (1) is moved relative to a beam (8) of said coherent monochromatic light, or vice versa, then during the sequence of projecting in discrete form, and by moving the substrate (1) relative to a jet (9) of the particles of said printing medium, or vice versa,
25 only said indented points (31) are coated with said particles (6) in order to obtain printed points (31) whose combination represents said symbol (4).
6. The method as claimed in claim 5, each point (7) of the substrate (1) which is positioned on the latter in order to mark the symbol (4), is made to receive the monochromatic light beam (8) then the jet (9) of printing medium.
- 30 7. The method as claimed in claims 1 and 2, wherein the droplets (6) comprise a polymerizable printing medium and, after the printing medium has been deposited on the indented surface (3, 31), this printing medium is polymerized under exposure to ultraviolet light, for example monochromatic and coherent ultraviolet light.
8. The method as claimed in claim 1, wherein the substrate (1) forms part of an
35 object (10) to be marked, for example a glass bottle or a glass syringe.

9. An installation for surface marking a solid substrate (1), comprising an instrument (11) for exposing the substrate to coherent monochromatic light (2), comprising a source (13) of said light, a head (14) for projecting a beam (8) of said light, and a component (15) for controlling said beam, in particular its modulation; as
 5 well as means (16, 17) for moving the substrate (1) relative to the beam projection head (14), or vice versa; which installation also comprises:

- an instrument (12) for projecting in discrete form targeted onto the substrate (1), comprising a source (18) of a printing medium, a head (19) for projecting a jet (9) of particles (6) of the printing medium, and a component (20) for
 10 controlling said jet;
- a control means (21) which is connected to the components (15, 20) for controlling the beam and the jet and is designed to obtain on the substrate (1) as a function of its position relative to the heads (14, 19) for projecting the beam (8) and for projecting the jet (9) respectively, simple abrasion designed
 15 for bonding of the printing medium then deposition of the latter, targeted into the indented surface, successively at the same point (7) having elementary area;
- all the points (7) coated with the printing medium, or printed points, in combination representing a symbol (4) with which the substrate (1) is thus marked.

20 10. The installation as claimed in claim 9, wherein the heads (14, 19) for projecting the beam (8) and for projecting the jet (9), respectively, are fixed and the means (16, 17) for moving the substrate comprise, in particular, a conveyor (16) or a turntable (17), for example with a component for rotating said substrate, and the control means (21) includes a sensor (23) detecting the position and possibly the orientation of the
 25 substrate (1).

11. The installation as claimed in claim 9, wherein the heads (14, 19) for projecting the beam (8) of light and for projecting the jet (9) of printing medium in discrete form are joined in a single component (24).